NOTES AND MEMORANDA.

Cancer and Heredity.

"The determination of the part played by heredity in cancer presents peculiar difficulties. One is due to the fact that the main incidence is at a time of life later than the usual reproductive period, so that the natural elimination of the morbid strain, which usually occurs with hereditary deleterious factors, would be inoperative in the case of cancer. Furthermore, it renders it very difficult to collect complete statistical information of the incidence of the disease in the families of cancerous patients, and this difficulty is increased by the rarity of autopsies and unsatisfactory systems of death certification. Similar difficulties attach to the study of the question in animals, but the problem has been attacked from this side by Maud Slye* in America. During the past twelve years she has made *post-mortem* examinations on more than 40,000 mice, all descendants of a limited and carefully selected stock, bred together according to definite plans designed to give evidence as to the influence of heredity on the incidence of spontaneous tumours. Every effort is directed to the one object of permitting each mouse to reach a maximum age, and long experience and great care have made it possible to limit to a large extent the epidemic infections that constantly threaten such large colonies of mice. All mice that die, whether evidently cancerous or not, are submitted to necropsy, and sections of all lesions that might be cancerous or concerning which there is any doubt whatever —for example, every pneumonic lung—are examined microscopically. In this way more than 5,000 spontaneous tumours, mostly malignant, have been found, and the results have been summarized by H. Gideon Wells† in a recent paper on the influence of heredity on the occurence of cancer. These experiments indicate that cancer in mice appears in most of the forms seen in man, and in far greater variety than had previously been supposed. Strains were established in which, among many hundreds of individuals through twenty-five or thirty generations, not a single case of tumour growth has been seen, while other strains have been obtained with figures approaching 100 per cent. tumour incidence for several generations. Not only is the incidence of cancer influenced by heredity, but also its form and its character. For example, in some strains sarcoma is very common; in others it is found rarely or never. In some strains any form of malignancy other than mammary cancer is seldom seen. In another strain there have been more than a hundred primary liver tumours,

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* *Journal of Cancer Research*, 7, 107, 1922.

† *Journ. Amer. Med. Assoc.* 81, 1017 and 1103, 1923.

while in all the other mice examined in Slye's laboratory not a single liver tumour has been found, and only two have been reported from other laboratories. Another strain has yielded a considerable number of tumours of the testis although not a single case has ever been reported from elsewhere. The resistance to cancer in these mice behaves in breeding, in Slye's experience, like a typical Mendelian dominant character. The susceptibility behaves as a Mendelian recessive." Well's assertion that human statistical evidence is not of sufficient accuracy or extent to render it of any value, is countered by the researches of Wassink van Raamsdonk, reported in the *Eugenics Review*, XV. 4. p. 627.

(*British Medical Journal*, 15-xii-23).

Hereditary Nystagmus.

An interesting Dissertation has been published recently by Dr. G. D. Hemmes* containing the pedigree charts of several families with hereditary Nystagmus, as well as those already known in the literature of the subject as those from four families investigated by the Author and a number (both hitherto unpublished) investigated by Dr. Waardenburg, a well-know writer and occulist, who is interested in genetic research.

Of these four families with hereditary disease, three were traced back to the years 1740, 1750 and 1670. No consanguinity between these families could be found. A large number of the living members underwent a detailed investigation as to anomalies of the eyes, ears and nervous system. Two of these families belonged to the type with mixed heredity (as well male as female sufferers), one of them to the type with gynophore heredity. Taking all the known pedigrees together, Dr. Hemmes does not find a definite difference between these types I and II, except this different mode of heredity. Head-shaking, considered by Nettleship as typical for type I. was also found in the family described by Hemmes as belonging to type II. Parental albinism cannot either be considered as typical for type II., because Hemmes found in his cases normal pigmentation. It appeared that these two types can be found in different branches of the same families.

In the mixed type of heredity the nystagmus is never recessive, neither is it, however, completely dominant. Often the abnormal trait can be latent during several generations, which does not correspond with true dominance.

The author, taking into consideration all the cases known to literature as well as those studied by Waardenburg and by himself, comes to the conclusion that from 28 fathers with the abnormality 88 daughters were born (61% abnormal), 50 sons (18% abnormal). As to the 28 mothers with the abnormality, 70 sons (64% abnormal) had 34 daughters (35% abnormal). Thus the persons bearing the trait gave it over in a larger number to their children of the opposite

* On Hereditary Nystagmus, 1924.

sex. This sex itself is found in larger frequency than the opposite sex. It is not impossible, according to Dr. Hemmes, that selective fertility or a lethal factor are responsible for these differences—and together with the above-mentioned latency have to be considered as the reason why the numbers of normal and abnormal persons seem to be unequal and do not conform to the Mendel law. As to the other gynophore type of heredity, Dr. Hemmes found, that from the marriage of normal men and female carriers, 1136 sons (96 abnormal) and 90 daughters (1 abnormal) have been born. So again a larger production of the opposite sex than the sex of the bearer of the abnormality. In order to obtain an idea of the frequency of this abnormality in the Netherlands, the figures of 220,802 military recruits (1921-1924) have been consulted. 117 of these had been refused on account of their nystagmus. Tracing 56 of these cases in different parts of the country, 21 appeared to have a heredity basis. Supposing that the relatives between female and male sufferers of nystagmus is the same as in the actually known pedigrees. Dr. Hemmes came to the result that amongst the 7,145,647 inhabitants of the Netherlands (1st July, 1923) ± 702 male and 340 females, that is ± 1 among 6,500 persons has this abnormality.

The author finds reason for supposing that a lessened function of the otoliths of the semi-circular canals is responsible for the hereditary nystagmus.

M. A. VAN HERWERDEN.

Family Limitation amongst the Cheyenne Indians.

"It was long the custom that a woman should not have a second child until her first was about ten years of age. When that period was reached, the man was likely to go with his wife and child to some dance or public gathering, and there, giving away at the same time a good horse to some friend or to some poor person, to announce publicly that now this child was going to have a brother or sister. To be able to make such an announcement was a great credit to the parents' self-control."

G. B. GRINNELL, *The Cheyenne Indians*, 1923.

Racial Characters and Foetal Development.

Dr. L. Bolk, Professor of Anatomy at Amsterdam University, during the last winter gave some lectures on his foetalisation theory and its relation to racial anatomy. The theory accepts that man originated from a foetal form which attained sexual maturity. Though man has the nearest relation in anatomical build to the anthropoids, his form cannot be derived from these latter animals. In many respects man appears to be not more, but *less* differentiated than the anthropoids. The form of man has not been reached—as is often accepted by extrinsic, but by intrinsic, factors. Prof. Bolk thinks that the latter must be localised in connection with the function of different endocrine glands. Some Anthropologists accept that racial

features originated in changes in endocrine secretions and that racial differences have to be ascribed to a different harmony in the internal gland factors. According to Prof. Bolk every man has his own hormonal index. These endocrine substances can as well stimulate as inhibit and suppress. It appears that all special human traits result from such an inhibition during foetal development. Man is not derived from the anthropoids but has stopped growth at a certain point during the course of development.

So there exists less difference between a new-born gorilla and a new-born child than between those two in the adult state. There exists even in the foetal development of the gorilla a stage during which we trace such human traits, f.i., hairlessness of the body and the build of the skull connected with erect gait. The negro and white are parallel during development, but in the latter pigmentation is inhibited, in the negro only retarded, so that it appears in the first years after birth.

In the diluvial races development might have gone quicker than it actually has. This can be judged from the find of two jaws of diluvial children in which there had been no intervals between the appearance of the first and the second molars as in modern man during the 9th to the 13th year of life. The retardation in human development, as compared to that of the anthropoids, is not limited to morphological traits but can be also recognised, according to Prof. Bolk, in psychological and physiological behaviour, f.i., the year-long dependence of the human child from the parents which is the cause of the establishment of the family. In its present form the fertilisation theory has not yet been published by the Author. As to the part played by the endocrine organs in the evolution of man, there appeared an article by Professor Bolk in the *Lancet*, 10th Sept., 1921.

M. A. VAN HERWERDEN.

National Bureau of Anthropology of the Netherlands.

A Dutch Society for the Advancement of Mental Hygiene has been founded. Chairman, Professor Z. H. Bouman, neurologist and psychologist at Amsterdam University. On 31st May, 1924, the objects of the Society were laid before an invited assembly of sociologists and physicians. There will be three sections: I. Section for heredity of man and eugenics; II. Section for the problems concerning the mentally normal people; III. Section for the problems concerning the abnormal.

Introductory lectures at the meeting (as to the future aims of the Society) were given on these three subjects by Dr. M. A. van Herwerden, biologist at Utrecht University, Dr. M. van der Hoeve, Director of the Municipal National Service and School Physician at Amersfoort, Dr. F. S. Meyers, Psychological and Neurological Advisor at the Municipal Medical Service at Amsterdam.

It is to be expected that the Section of heredity and eugenics of this Society will confer with the other existing Commissions on heredity of man in this country.

In the series of lectures arranged by the National Netherland Bureau of Anthropology in January, 1924, Dr. M. A. van Herwerden (lecturer in General Birl. at Utrecht University) spoke about *Heredity of Man and Eugenics*. A survey was made of the means of applying the results of scientific research in heredity to the study of man. Special attention was paid to the possibility of adjusting the conceptions of human constitution and individual pre-disposition to diseases, and so on, to the ideas of modern scientific genetics. Pointing to the work done in other countries the speaker tried to arouse interest among the young physicians of the future, for the study of the somatic and psychological traits and faculties of the Dutch people : "We need your co-operation. The present youth is not individualistic like the youth of former years. So much the better! Only in times of social emotion it will be possible to arouse interest for Eugenics. Yet, besides this, I should like to arouse your individual feeling by pointing to the importance for the community of accurate personal description, and exact autobiography. In popular instructions and information and guidance you never should fail to explain that the hereditary factors, which are handed on from one generation to another, as I told you, are no unchangeable, unshakable entities. The convictions ripened by experimental research that these factors underlying the visible traits have to be considered as potentialities of reaction—leads one to that broader idea of the *Pluripotency* of the living substance. Much more is then attainable than that which under narrowminded or miserable circumstances will be attained—much greater is the capacity for unfolding, as well what concerns the somatic as the psychic faculties in the individual life and in the life of peoples. But finally this plasticity of the living substance is limited. The eugenist watches that in the future these limits will not be trespassed."

M. A. VAN HERWERDEN.

Race and Population of Holland.

In the series of Anthropological lectures at Amsterdam, arranged by the Netherland National Bureau of Anthropology (January, 1924), Professor Bolh, Anatomist at Amsterdam University, spoke about the composition and descent of the Dutch population.

In his book on the races or Europe *Ripley* already characterised the anthropology of the Netherlands as a remarkably interesting one. What we actually call the Dutch people is indeed a mosaic compound of races. It is still possible up to this time to distinguish two somatically and psychologically different races mixed in many parts of the country, but leaving in some places fairly pure types. These are the Alpine and the Nordic race, the first one probably invading this country very soon after the last glacial period. The latter came from the Scandinavian shores, reaching Holland from the North.

That the Alpine race, coming from the South, infiltrates the country along the larger rivers can still be traced by the Celtic geographical names. The purest type of the Nordic race are still actually found in the province of Frisia. In the eastern-northern part (province of Groningen) it is mixed with, and partially replaced by, the Saxon type, coming in much later from mid-Europe. In the same way the Frankish invasion changed more or less the Alpine character of the southern part, having a greater influence on the Flemish than on the Dutch population. Considered as a whole the eastern invasions have more interest from a linguistic than from the anthropological standpoint, because they had much more influence on the language than on the composition of the population. The purest Alpine types are still found in some of the Isles of the province of Zeeland.

M. A. VAN HERWERDEN.

The Immigration Question.

Professor Osborn, President of the Second International Congress of Eugenics, after quoting from his address on "Eugenics, Genetics and the Family," makes the following observations in the *New York Times*, 8. iv. 24 :—

"The question now before Congress and the country which is receiving the most enlightened discussion and consideration in our newspapers and magazines is whether we shall admit those whom we really want here to continue to build up our civilization, whether we shall do our own selection, with due regard to our own institutions, or whether we shall let other countries, peoples and nationalities do the selecting for us. There is incontestable evidence that other countries, aided by foreign steamship agencies, are endeavouring to do the selection, to send us the people they believe they can spare. . . .

"In the meantime, there are many amusing aspects of the discussion that is going on in the current press and in certain of our magazines, chiefly arising from the confusion between nationality and race. In certain recent articles contributed to your esteemed columns this confusion is quite apparent. For example, it is argued that we should admit Polish immigrants because Kosciusko and Pulaski fought with us during the Revolution; that we should admit South Italians because Italy gave us Columbus. At the same time there are somewhat dubious comments about my own race, the Nordics. This is why I venture to entitle this communication 'Lo, the Poor Nordic!'

"The Northern races, as is well known to anthropologists, include all those peoples whch originally occupied the western plateau of Asia and traversed Northern Europe, certainly as early as 12,000 B.C. In the country which they occupied the conditions of life were hard, the struggle for existence severe, and this gave rise to their principal virtues, as well as to their faults, to their fighting qualities and to their love of strong drink. Increasing beyond the power of their own country to support them, they invaded the countries to the south, not only as

conquerors but as contributors of strong moral and intellectual elements to more or less decadent civilizations. Through the Nordic tide which flowed into Italy came the ancestors of Raphael, Leonardo da Vinci, Galileo, Titian; also, according to Gunther ('Rassenkunde des Deutschen Volkes,' p. 339), of Giotto, Donatello, Botticelli, Andrea del Sarto, Petrarch and Tasso. Dante's name, Alighieri, is also German, although the Italian anthropologist Sergi recently denied his Nordic origin. Columbus, from his portraits and from his busts, authentic or not, was clearly of Nordic ancestry. Turning to Poland—Kossuth of Hungary was a Calvinist and of noble family, and there is a presumption in favour of his being a Nordic; Kosciusko and Pulaski were members of a Polish nobility which at that time was largely Nordic. Of France, Coligny, Colbert, Richelieu, Lafayette and Rochambeau, beyond all question, were of French (Norman) Nordic nobility, and in modern France we observe that two of the leaders in the recent great struggle, Joffre and Foch, are both Nordic, while Clemenceau and Poincaré are of Alpine blood. France includes among her great artists Rodin, of Nordic origin; among her leading literary men, Lamartine, Racine, Anatole France, all Nordics. The intellectual influence of the Northern race is always apparent in Spain, where it appears in her greatest man of letters, Cervantes; also in Portugal in the poet-hero Camoens, whose ancestors were Gothic. Of the fighting stock of Italy, Napoleon, although born in Corsica, was descended from the old Lombard nobility, of Nordic origin, and it is probable that Garibaldi, with his Teutonic name, was largely of Northern stock. It is said, for example, that Copernicus was a Slav, and we certainly owe much to Slav genius.

"This is not to deny that other races can point to men of equal or of greater achievement, and it will be interesting for each race, as I suggested in my inaugural address, to select its own men of outstanding virtue and achievement, but not to include within its own ranks men who really belong to other races."